

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



OFFICE OF CHEMICAL SAFETY AND  
POLLUTION PREVENTION

**MEMORANDUM**

**DATE:** 12/17/2019

**SUBJECT:** **Triticonazole.** Acute and Chronic Aggregate Dietary (Food and Drinking Water)  
Exposure and Risk Assessment for Registration Review.

**PC Code:** 125620

**Decision Nos.:** 530550

**Petition No.:** NA

**Risk Assessment Type:** Dietary

**TXR No.:** NA

**MRID No.:** NA

**DP Barcode:** D455518

**Registration No.:** 7969-257

**Regulatory Action:** Registration Review

**Case No.:** NA

**CAS No.:** 131983-72-7

**40 CFR:** §180.583

**FROM:** William D. Wassell, Chemist  
Risk Assessment Branch III (RAB3)  
Health Effects Division (7509P)

A handwritten signature in black ink, appearing to read "W.D. Wassell", is placed to the right of the "FROM:" line.

**THROUGH:** Bonnie Cropp-Kohlligian, Environmental Scientist  
Sarah Levy, Chemist  
Dietary Exposure Science Advisory Council (DESAC)  
Health Effects Division (7509P)

A handwritten signature in black ink, appearing to read "Bonnie Cropp-Kohlligian", is placed to the right of the "THROUGH:" line.

**TO:** C. Bongard, Chemical Review Manager  
Avivah Jakob, Chemical Review Manager  
Risk Management & Implementation Branch 3  
Pesticide Re-evaluation Division (7508P)

**Executive Summary**

Acute and chronic aggregate dietary food and drinking water exposure and risk assessments were conducted using the Dietary Exposure Evaluation Model software with the Food Commodity Intake Database (DEEM-FCID) Version 3.16. This software uses 2003-2008 food consumption data from the U.S. Department of Agriculture's (USDA's) National Health and Nutrition Examination Survey, What We Eat in America (NHANES/WWEIA). The analyses were conducted in support of a draft human health risk assessment for registration review. Note: This memorandum was reviewed by two peer reviewers of the Dietary Exposure Science Advisory Council Standard Operating Procedure (DESAC SOP 2012.1).

The uses of triticonazole [(5*E*)-5-[(4-chlorophenyl)methylene]-2,2-dimethyl-1-(1*H*-1,2,4-triazol-1-ylmethyl)cyclopentanol] have been evaluated previously and are included in the current dietary exposure estimates for free triazole or conjugated triazoles, and thus, an updated risk assessment is not needed for the triazole derivatives.

The acute and chronic analyses were both unrefined, using tolerance-level residues, 100% crop treated (CT) data, and Tier 2 estimated drinking water concentrations (EDWCs) for ground water sources provided by the Environmental Fate and Effects Division (EFED).

#### Acute Dietary Exposure Assessment

For the acute dietary analysis, the incorporated EDWC value of 520 ppb (µg/L) is the primary risk driver. The EDWC value was generated by the Pesticide Root Zone Model for Ground Water (PRZM-GW) which assumes no degradation over the course of 100 years of the maximum number of applications applied at the maximum application rate. The acute dietary risk assessment shows that for all included commodities, the acute dietary risk estimates at the 95<sup>th</sup> percentile are not of concern [i.e., <100% of the acute population-adjusted dose (aPAD)]. The resulting acute dietary (food + drinking water) risk estimates at the 95<sup>th</sup> percentile are <1% of the aPAD for the general U.S. population and 2.2% of the aPAD for all infants <1 year old, the most highly exposed population subgroup. Females 13-49 years old have a lower aPAD than the general population. As a result, even though the exposure estimate for females 13-49 years old was lower than the estimate for the U.S. population, females 13-49 years old have the highest risk estimate (5.7% of the aPAD).

#### Chronic Dietary Exposure Assessment

For the chronic dietary analysis, the incorporated EDWC value of 163 ppb (µg/L) is the primary risk driver. The EDWC value was generated by PRZM-GW which assumes no degradation over the course of 100 years of the maximum number of applications applied at the maximum application rate. The non-cancer chronic dietary risk assessment shows that for all included commodities, the chronic dietary risk estimates are not of concern [i.e., <100% of the chronic population-adjusted dose (cPAD)] for any sub-population. The resulting chronic dietary (food + drinking water) risk estimates represented 2.0% of the cPAD for the general U.S. population and 5.2% of the cPAD for all infants, the most highly exposed population subgroup.

#### Cancer Dietary Exposure Assessment

Triticonazole is classified as “not likely to be carcinogenic to humans;” therefore, cancer risk was not assessed.

## **1.0 Introduction**

Dietary risk assessment incorporates both exposure and toxicity of a given pesticide. For acute and chronic assessments, the risk is expressed as a percentage of a maximum acceptable dose (i.e., the dose that HED has concluded will result in no unreasonable adverse health effects). This dose is referred to as the PAD. The PAD is equivalent to the point of departure (e.g., POD, NOAEL (no adverse effect level), LOAEL (lowest adverse effect level)) divided by the required uncertainty or safety factors.

For acute and non-cancer chronic exposures, HED is concerned when estimated dietary risk exceeds 100% of the PAD. References that discuss the acute and chronic risk assessments in more detail are available on the EPA/pesticides web site: “Available Information on Assessing Exposure from Pesticides, A User’s Guide,” 21-JUN-2000, web link: <http://www.epa.gov/fedrgstr/EPA-PEST/2000/July/Day-12/6061.pdf>; or see SOP 99.6 (20-AUG-1999).

The most recent dietary risk assessment for triticonazole was conducted by Nancy J. Tsauro (D409744, 04/10/2013).

## **2.0 Residue Information**

Triticonazole is a fungicidal active ingredient (ai) in the triazole chemical family that acts by inhibiting the synthesis of ergosterol (specifically C-14 demethylation), otherwise known as sterol demethylation inhibition (DMI). The residue of concern in primary crops, livestock commodities, and rotational crops is the parent compound only, triticonazole (D274564, TXR 0050233, Nancy Dodd, *et al.*, 06/04/2001). However, finite residues are not expected in livestock commodities. For drinking water, the residues of concern include the parent compound along with all identified metabolites.

Tolerance-level residues are used for all acute and chronic assessments. Triticonazole is currently only registered for use as a seed treatment on all cereal grains except rice (crop groups 15 and 16). Tolerances are established under 40 CFR §180.583(a)(1) at 0.01 ppm for crop group 15, and 0.10 for crop group 16.

DEEM 2018 default processing factors were assumed for all processed commodities. Based on the processing studies for barley and wheat, triticonazole residues did not concentrate in barley and wheat processed commodities (D274564, TXR 0050233, Nancy Dodd, *et al.*, 06/04/2001).

### **Residues in Fish:**

EPA is now including residues in fish/catfish in the dietary exposure assessment if they are reported by the USDA PDP. PDP monitored pesticide residues in catfish in 2008, 2009, and 2010 and in salmon in 2013 and 2014; however, none of the samples contained detectable residues of triticonazole. As a result, PDP residues in fish were not included in this assessment.

## **3.0 Percent Crop Treated Information**

Both acute and chronic assessments assumed 100% CT for all commodities.

## **4.0 Drinking Water Data**

The drinking water residues used in the dietary risk assessment were provided by EFED and incorporated directly into this dietary assessment (“Triticonazole: Tier I and II Drinking Water Exposure Assessment for Existing Turf Uses and the Proposed Expansion of Ornamental Use on the Trinity® Fungicide Label (Reg. No. 7969-257),” D402685, M. Biscoe, 04/03/2013). Since

the most recent triticonazole DWA completed on April 3, 2013, there have not been any new environmental fate data or new proposed uses that would substantially change the estimated drinking water concentrations (EDWC). However, there have been several policy and guidance updates that may affect model input values (e.g. NAFTA half-life guidance, spray drift calculation, seed treatment, total toxic residue guidance). These updates have been considered and were also determined to not result in any substantial changes to the EDWC since currently used triticonazole half-life values are considered stable (D453169, S. Lin, 07/24/2019)

The drinking water models and their descriptions are available at the EPA internet site: <http://www.epa.gov/oppefed1/models/water/>. Ground water EDWCs from PRZM-GW were incorporated in the DEEM-FCID into the food categories “water, direct, all sources” and “water, indirect, all sources.” The EDWCs generated by PRZM-GW assume no degradation over the course of 100 years of the maximum number of applications applied at the maximum application rate. Table 1 summarizes the EDWCs provided by EFED.

<b>Table 1. Maximum Tier II Estimated Drinking Water Concentrations (EDWCs)<sup>a</sup></b>						
<b>Drinking water source (model)</b>	<b>1-in-10 year</b>		<b>30-year simulation</b>		<b>100-year simulation</b>	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
	<i>ppb (µg/L)</i>					
Surface water (PRZM-EXAMS)	157	116	-	81	-	-
Ground water (PRZM-GW)	-	-	10	1	<b>520</b>	<b>163</b>

a EDWCs are based on applications of triticonazole to turf using the maximum concentrations from the 100-year ground water simulation (i.e. an annual application rate of 3.45 lb ai/acre).

b Bolded values are recommended by EFED for human health risk assessment (DP402685, M. Biscoe, 04/03/2013).

## 5.0 DEEM-FCID Program and Consumption Information

Triticonazole acute and chronic dietary exposure assessments were conducted using the DEEM-FCID, Version 3.16, which incorporates 2003-2008 consumption data from USDA's NHANES/WWEIA. The data are based on the reported consumption of more than 20,000 individuals over two non-consecutive survey days. Foods “as consumed” (e.g., apple pie) are linked to EPA-defined food commodities (e.g., apples, peeled fruit - cooked; fresh or N/S; baked; or wheat flour - cooked; fresh or N/S, baked) using publicly available recipe translation files developed jointly by USDA/ARS and EPA. For chronic exposure assessment, consumption data are averaged for the entire U.S. population and within population subgroups. However, for acute exposure assessment, consumption data are retained as individual consumption events. Based on analysis of the 2003-2008 WWEIA consumption data, which took into account dietary patterns and survey respondents, HED concluded that it is most appropriate to report risk for the following population subgroups: the general U.S. population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, adults 20-49, females 13-49, and adults 50-99 years old.

For a chronic dietary exposure assessment, an estimate of the residue level in each food or food-form (e.g., orange or orange juice) on the food commodity residue list is multiplied by the average daily consumption estimate for that food/food form to produce a residue intake estimate.

The resulting residue intake estimate for each food/food form is summed with the residue intake estimates for all other food/food forms on the commodity residue list to arrive at the total average estimated exposure. Exposure is expressed in mg/kg body weight/day and as a percent of the cPAD. This procedure is performed for each population subgroup.

For an acute exposure assessment, individual one-day food consumption data are used on an individual-by-individual basis. The reported consumption amounts of each food item can be multiplied by a residue point estimate and summed to obtain a total daily pesticide exposure for a deterministic exposure assessment, or “matched” in multiple random pairings with residue values and then summed in a probabilistic assessment. The resulting distribution of exposures is expressed as a percentage of the aPAD on both a user (i.e., only those who reported eating relevant commodities/food forms) and a per-capita (i.e., those who reported eating the relevant commodities as well as those who did not) basis. In accordance with HED policy, per capita exposure and risk are reported for analyses performed at all levels of refinement. However, for deterministic assessments, any significant differences in user vs. per capita exposure and risk are specifically identified and noted in the risk assessment.

## 6.0 Toxicological Information

Table 2 summarizes the toxicological doses and endpoints for triticonazole concerning dietary exposure assessment.

<b>Table 2. Summary of Toxicological Doses and Endpoints for Triticonazole for Use in Dietary Human Health Risk Assessments<sup>a</sup></b>				
<b>Exposure/Scenario</b>	<b>Point of Departure</b>	<b>Uncertainty/FQPA Safety Factors</b>	<b>RfD, PAD, Level of Concern for Risk Assessment</b>	<b>Study and Toxicological Effects</b>
Acute Dietary (General Population, including Infants and Children)	NOAEL = 400 mg/kg/day	UF <sub>A</sub> = 10X UF <sub>H</sub> = 10X FQPA SF = 1X	Acute RfD = 4 mg/kg/day  aPAD = 4 mg/kg/day	Acute Neurotoxicity - Rat LOAEL = 2000 mg/kg/day based on increased motor activity in both sexes.
Acute Dietary (Females 13-49 years of age)	NOAEL = 50 mg/kg/day	UF <sub>A</sub> = 10X UF <sub>H</sub> = 10X FQPA SF = 1X	Acute RfD = 0.5 mg/kg/day  aPAD = 0.5 mg/kg/day	Developmental - Rabbit LOAEL = 75 mg/kg/day based on cranial variations, abortion, and increased pre- and post-implantation losses assumed to occur following a single dose (developmental toxicity).
Chronic Dietary (All Populations)	NOAEL = 17.4 mg/kg/day	UF <sub>A</sub> = 10X UF <sub>H</sub> = 10X FQPA SF = 1X	Chronic RfD = 0.17 mg/kg/day  cPAD = 0.17 mg/kg/day	Carcinogenicity - Mouse LOAEL of ~ 200 mg/kg/day based on decreased body weight gain and liver toxicity.  [LOAEL=202/209.5 kg/kg/day for males/females]

**Table 2. Summary of Toxicological Doses and Endpoints for Triticonazole for Use in Dietary Human Health Risk Assessments<sup>a</sup>**

Exposure/ Scenario	Point of Departure	Uncertainty/ FQPA Safety Factors	RfD, PAD, Level of Concern for Risk Assessment	Study and Toxicological Effects
Cancer (oral, dermal, inhalation)	Classification: “Not likely to be carcinogenic to humans” based on the absence of significant tumor increases in two adequate rodent carcinogenicity studies as per the CARC report dated June 15, 2006, TXR No.: 005249.			

a Point of Departure (POD) = A data point or an estimated point that is derived from observed dose-response data and used to mark the beginning of extrapolation to determine risk associated with lower environmentally relevant human exposures. NOAEL = no observed adverse effect level. LOAEL = lowest observed adverse effect level. UF = uncertainty factor. UF<sub>A</sub> = extrapolation from animal to human (interspecies). UF<sub>H</sub> = potential variation in sensitivity among members of the human population (intraspecies). FQPA SF = FQPA Safety Factor. PAD = population adjusted dose (a = acute, c = chronic). RfD = reference dose. MOE = margin of exposure. LOC = level of concern.

## 7.0 Results/Discussion

For acute and chronic assessments, HED is concerned when dietary risk exceeds 100% of the PAD. The DEEM-FCID analyses estimate the dietary exposure and risk of the U.S. population and various population subgroups. The results reported in Table 3 are for the general U.S. Population, all infants (<1 year old), children 1-2, children 3-5, children 6-12, youth 13-19, females 13-49, adults 20-49, and adults 50-99 years.

### Results of Acute Dietary (Food and Drinking Water) Exposure and Risk Analysis

The results of the acute dietary exposure analysis at the 95<sup>th</sup>, 99<sup>th</sup>, and 99.9<sup>th</sup> percentiles of exposure are reported in Table 3. At the 95<sup>th</sup> percentile, the acute dietary exposure for food and drinking water represented <1% of the aPAD for the U.S. population. The acute dietary exposure estimate for the highest reported exposed population subgroup, all infants <1 year old, represented 2.2% of the aPAD. Females 13-49 years old have a lower aPAD than the general population. As a result, even though the exposure estimate for females 13-49 years old was lower than the estimate for the U.S. population, females 13-49 years old have the highest risk estimate (5.7% of the aPAD at the 95<sup>th</sup> percentile).

### Results of Chronic Dietary (Food and Drinking Water) Exposure Analysis

The results of the chronic dietary exposure analysis are reported in the Table 3. The chronic dietary exposure for food and drinking water represented 2.0% of the cPAD for the U.S. population. The chronic dietary exposure for the highest reported exposed population subgroup, all infants (<1 year old), represented 5.4% of the cPAD.

Triticonazole is classified as “not likely to be carcinogenic to humans;” therefore, a cancer dietary assessment was not performed.



Table 3. Summary of Dietary (Food and Drinking Water) Exposure and Risk for Triticonazole								
Population Subgroup	Acute Dietary <sup>a</sup>						Chronic Dietary	
	95 <sup>th</sup> Percentile		99 <sup>th</sup> Percentile		99.9 <sup>th</sup> Percentile			
	Dietary Exposure	aPAD	Dietary Exposure	aPAD	Dietary Exposure	aPAD	Dietary Exposure	cPAD
	mg/kg/day	%	mg/kg/day	%	mg/kg/day	%	mg/kg/day	%
General U.S. Population	0.028405	<1	0.046733	1.2	0.088961	2.2	0.003447	2.0
All Infants (<1 year old)	<b>0.088922</b>	<b>2.2</b>	<b>0.120681</b>	<b>3.0</b>	<b>0.177035</b>	<b>4.4</b>	<b>0.008844</b>	<b>5.2</b>
Children 1-2 years old	0.043896	1.1	0.066098	1.7	0.162782	4.1	0.005004	2.9
Children 3-5 years old	0.035690	<1	0.054840	1.4	0.087256	2.2	0.004228	2.5
Children 6-12 years old	0.027108	<1	0.044448	1.1	0.068508	1.7	0.003050	1.8
Youth 13-19 years old	0.023667	<1	0.039005	1.0	0.058795	1.5	0.002525	1.5
Adults 20-49 years old	0.027975	<1	0.041498	1.0	0.060607	1.5	0.003434	2.0
Adults 50-99 years old	0.024918	<1	0.037630	<1	0.059307	1.5	0.003388	2.0
Females 13-49 years old	<b>0.028316</b>	<b>5.7</b>	<b>0.041595</b>	<b>8.3</b>	<b>0.058495</b>	<b>12</b>	0.003420	2.0

a The aPAD for the general population and all children = 4 mg/kg/day.

The aPAD for females 13-49 years old = 0.5 mg/kg/day.

b The subpopulations with the highest risk estimates are bolded.

## 8.0 Characterization of Inputs/Outputs

The acute and chronic dietary exposure analyses are completely unrefined. They are based on tolerance-level residues, 100% crop treated assumptions, HED 2018 default processing factors, and Tier 2 EDWCs. If needed, various refinements could be made through the use of average field trial values and translation of average field trial residues to other commodities using HED SOP 2000.1, empirical processing factors, incorporation of percentages of crops treated with triticonazole, or monitoring data. However, since risk estimates are below the level of concern, a refined analysis is not required at this time.

## 9.0 Conclusions

Acute and chronic dietary exposure and risk assessments were conducted for the registered food uses and permanent tolerances of triticonazole, including potential exposure from drinking water. The acute and chronic dietary (food + drinking water) exposure and risk estimates for triticonazole are below HED's level of concern for the general U.S. population and all population subgroups. The most highly exposed population subgroup for acute and chronic assessments was all infants (<1 year old), respectively. HED is confident that the assessments do not underestimate risk to the general U.S. population or any population subgroup.

## 10.0 List of Attachments

- Attachment 1: Acute (Food Plus Water) Residue Input File
- Attachment 2: Acute Results File (General Population and Children)
- Attachment 3: Acute Results File (Females 13-49 Only)
- Attachment 4: Chronic (Food Plus Water) Residue Input File
- Attachment 5: Chronic Results File

**Attachment 1: Acute (Food Plus Water) Residue Input File**

Filename: E:\\$ Work Files\\$ Triticonazole\DEEM\09\_18\_2019\_acute\_triticonazole.r08

Chemical: Triticonazole

RfD(Chronic): .17 mg/kg bw/day NOEL(Chronic): 17.4 mg/kg bw/day

RfD(Acute): 4 mg/kg bw/day NOEL(Acute): 400 mg/kg bw/day

Date created/last modified: 09-18-2019/10:22:12

Program ver. 3.16, 03-08-d

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj. Factors		Comment
				#1	#2	
1500025000	15	Barley, pearled barley	0.010000	1.000	1.000	
1500025001	15	Barley, pearled barley-babyfood	0.010000	1.000	1.000	
1500026000	15	Barley, flour	0.010000	1.000	1.000	
1500026001	15	Barley, flour-babyfood	0.010000	1.000	1.000	
1500027000	15	Barley, bran	0.010000	1.000	1.000	
1500065000	15	Buckwheat	0.010000	1.000	1.000	
1500066000	15	Buckwheat, flour	0.010000	1.000	1.000	
1500120000	15	Corn, field, flour	0.010000	1.000	1.000	
1500120001	15	Corn, field, flour-babyfood	0.010000	1.000	1.000	
1500121000	15	Corn, field, meal	0.010000	1.000	1.000	
1500121001	15	Corn, field, meal-babyfood	0.010000	1.000	1.000	
1500122000	15	Corn, field, bran	0.010000	21.400	1.000	
1500123000	15	Corn, field, starch	0.010000	1.000	1.000	
1500123001	15	Corn, field, starch-babyfood	0.010000	1.000	1.000	
1500124000	15	Corn, field, syrup	0.010000	1.000	1.000	
1500124001	15	Corn, field, syrup-babyfood	0.010000	1.000	1.000	
1500125000	15	Corn, field, oil	0.010000	1.000	1.000	
1500125001	15	Corn, field, oil-babyfood	0.010000	1.000	1.000	
1500126000	15	Corn, pop	0.010000	1.000	1.000	
1500127000	15	Corn, sweet	0.010000	1.000	1.000	
1500127001	15	Corn, sweet-babyfood	0.010000	1.000	1.000	
1500226000	15	Millet, grain	0.010000	1.000	1.000	
1500231000	15	Oat, bran	0.010000	7.700	1.000	
1500232000	15	Oat, flour	0.010000	1.000	1.000	
1500232001	15	Oat, flour-babyfood	0.010000	1.000	1.000	
1500233000	15	Oat, groats/rolled oats	0.010000	1.000	1.000	
1500233001	15	Oat, groats/rolled oats-babyfood	0.010000	1.000	1.000	
1500328000	15	Rye, grain	0.010000	1.000	1.000	
1500329000	15	Rye, flour	0.010000	1.000	1.000	
1500344000	15	Sorghum, grain	0.010000	1.000	1.000	
1500345000	15	Sorghum, syrup	0.010000	1.000	1.000	
1500381000	15	Triticale, flour	0.010000	1.000	1.000	
1500381001	15	Triticale, flour-babyfood	0.010000	1.000	1.000	
1500401000	15	Wheat, grain	0.010000	1.000	1.000	
1500401001	15	Wheat, grain-babyfood	0.010000	1.000	1.000	
1500402000	15	Wheat, flour	0.010000	1.000	1.000	
1500402001	15	Wheat, flour-babyfood	0.010000	1.000	1.000	
1500403000	15	Wheat, germ	0.010000	1.000	1.000	
1500404000	15	Wheat, bran	0.010000	1.000	1.000	
1500405000	15	Wild rice	0.010000	1.000	1.000	
8601000000	86A	Water, direct, all sources	0.520000	1.000	1.000	
8602000000	86B	Water, indirect, all sources	0.520000	1.000	1.000	



**Attachment 2: Acute Results File (General Population and Children)**

US EPA Ver. 3.18, 03-08-d  
 DEEM-FCID ACUTE Analysis for TRITICONAZOLE NHANES 2003-2008 2-Day  
 Residue file: 09\_18\_2019\_acute\_triticonazole.r08 Adjustment factor #2 NOT used.  
 Analysis Date: 09-18-2019/10:24:26 Residue file dated: 09-18-2019/10:22:12  
 NOEL (Acute) = 400.000000 mg/kg body-wt/day  
 RAC/FF intake summed over 24 hours  
 Run Comment: ""

Summary calculations--per capita:

--- 95th Percentile----			--- 99th Percentile----			---99.9th Percentile----		
Exposure	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
Total US Population:								
0.028405	0.71	14082	0.046733	1.17	8559	0.088961	2.22	4496
All Infants:								
0.088922	2.22	4498	0.120681	3.02	3314	0.177035	4.43	2259
Children 1-2:								
0.043896	1.10	9112	0.066098	1.65	6051	0.162782	4.07	2457
Children 3-5:								
0.035690	0.89	11207	0.054840	1.37	7293	0.087256	2.18	4584
Children 6-12:								
0.027108	0.68	14755	0.044448	1.11	8999	0.068508	1.71	5838
Youth 13-19:								
0.023667	0.59	16901	0.039005	0.98	10255	0.058795	1.47	6803
Adults 20-49:								
0.027975	0.70	14298	0.041498	1.04	9639	0.060607	1.52	6599
Adults 50-99:								
0.024918	0.62	16052	0.037630	0.94	10629	0.059307	1.48	6744

**Attachment 3: Acute Results File (Females 13-49 Only)**

US EPA  
DEEM-FCID ACUTE Analysis for TRITICONAZOLE  
Residue file: 09\_18\_2019\_acute\_triticonazole.r08 Adjustment factor #2 NOT used.  
Analysis Date: 09-18-2019/10:26:24 Residue file dated: 09-18-2019/10:22:12  
NOEL (Acute) = 400.000000 mg/kg body-wt/day  
Acute Pop Adjusted Dose (aPAD) varies with population; see individual reports  
RAC/FF intake summed over 24 hours  
Run Comment: ""  
=====

Ver. 3.18, 03-08-d

NHANES 2003-2008 2-Day

Summary calculations--per capita:

--- 95th Percentile----			--- 99th Percentile----			---99.9th Percentile----		
Exposure	% aPAD	MOE	Exposure	% aPAD	MOE	Exposure	% aPAD	MOE
Female 13-49:								
0.028316	5.66	14126	0.041595	8.32	9616	0.058495	11.70	6838

**Attachment 4: Chronic (Food Plus Water) Residue Input File**

Filename: E:\\$ Work Files\\$ Triticonazole\DEEM\09\_18\_2019\_chronic\_triticonazole.r08

Chemical: Triticonazole

RfD(Chronic): .17 mg/kg bw/day NOEL(Chronic): 17.4 mg/kg bw/day

RfD(Acute): 4 mg/kg bw/day NOEL(Acute): 400 mg/kg bw/day

Date created/last modified: 09-18-2019/10:19:09

Program ver. 3.16, 03-08-d

EPA Code	Crop Grp	Commodity Name	Def Res (ppm)	Adj.Factors #1	#2	Comment
1500025000	15	Barley, pearled barley	0.010000	1.000	1.000	
1500025001	15	Barley, pearled barley-babyfood	0.010000	1.000	1.000	
1500026000	15	Barley, flour	0.010000	1.000	1.000	
1500026001	15	Barley, flour-babyfood	0.010000	1.000	1.000	
1500027000	15	Barley, bran	0.010000	1.000	1.000	
1500065000	15	Buckwheat	0.010000	1.000	1.000	
1500066000	15	Buckwheat, flour	0.010000	1.000	1.000	
1500120000	15	Corn, field, flour	0.010000	1.000	1.000	
1500120001	15	Corn, field, flour-babyfood	0.010000	1.000	1.000	
1500121000	15	Corn, field, meal	0.010000	1.000	1.000	
1500121001	15	Corn, field, meal-babyfood	0.010000	1.000	1.000	
1500122000	15	Corn, field, bran	0.010000	21.400	1.000	
1500123000	15	Corn, field, starch	0.010000	1.000	1.000	
1500123001	15	Corn, field, starch-babyfood	0.010000	1.000	1.000	
1500124000	15	Corn, field, syrup	0.010000	1.000	1.000	
1500124001	15	Corn, field, syrup-babyfood	0.010000	1.000	1.000	
1500125000	15	Corn, field, oil	0.010000	1.000	1.000	
1500125001	15	Corn, field, oil-babyfood	0.010000	1.000	1.000	
1500126000	15	Corn, pop	0.010000	1.000	1.000	
1500127000	15	Corn, sweet	0.010000	1.000	1.000	
1500127001	15	Corn, sweet-babyfood	0.010000	1.000	1.000	
1500226000	15	Millet, grain	0.010000	1.000	1.000	
1500231000	15	Oat, bran	0.010000	7.700	1.000	
1500232000	15	Oat, flour	0.010000	1.000	1.000	
1500232001	15	Oat, flour-babyfood	0.010000	1.000	1.000	
1500233000	15	Oat, groats/rolled oats	0.010000	1.000	1.000	
1500233001	15	Oat, groats/rolled oats-babyfood	0.010000	1.000	1.000	
1500328000	15	Rye, grain	0.010000	1.000	1.000	
1500329000	15	Rye, flour	0.010000	1.000	1.000	
1500344000	15	Sorghum, grain	0.010000	1.000	1.000	
1500345000	15	Sorghum, syrup	0.010000	1.000	1.000	
1500381000	15	Triticale, flour	0.010000	1.000	1.000	
1500381001	15	Triticale, flour-babyfood	0.010000	1.000	1.000	
1500401000	15	Wheat, grain	0.010000	1.000	1.000	
1500401001	15	Wheat, grain-babyfood	0.010000	1.000	1.000	
1500402000	15	Wheat, flour	0.010000	1.000	1.000	
1500402001	15	Wheat, flour-babyfood	0.010000	1.000	1.000	
1500403000	15	Wheat, germ	0.010000	1.000	1.000	
1500404000	15	Wheat, bran	0.010000	1.000	1.000	
1500405000	15	Wild rice	0.010000	1.000	1.000	
8601000000	86A	Water, direct, all sources	0.163000	1.000	1.000	
8602000000	86B	Water, indirect, all sources	0.163000	1.000	1.000	

**Attachment 5: Chronic Results File**

US EPA

Ver. 3.16, 03-08-d

DEEM-FCID Chronic analysis for TRITICONAZOLE

NHANES 2003-2008 2-day

Residue file name: E:\\$ Work Files\\$

Triticonazole\DEEM\09\_18\_2019\_chronic\_triticonazole.r08

Adjustment factor #2 NOT used.

Analysis Date 09-18-2019/10:19:59

Residue file dated: 09-18-2019/10:19:09

Reference dose (RfD, Chronic) = .17 mg/kg bw/day

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Total exposure by population subgroup

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Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
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Total US Population	0.003447	2.0%
Hispanic	0.003296	1.9%
Non-Hisp-White	0.003544	2.1%
Non-Hisp-Black	0.002850	1.7%
Non-Hisp-Other	0.003965	2.3%
Nursing Infants	0.003109	1.8%
Non-Nursing Infants	0.011405	6.7%
Female 13+ PREG	0.003243	1.9%
Children 1-6	0.004451	2.6%
Children 7-12	0.002901	1.7%
Male 13-19	0.002387	1.4%
Female 13-19/NP	0.002662	1.6%
Male 20+	0.003209	1.9%
Female 20+/NP	0.003608	2.1%
Seniors 55+	0.003321	2.0%
All Infants	0.008844	5.2%
Female 13-50	0.003423	2.0%
Children 1-2	0.005004	2.9%
Children 3-5	0.004228	2.5%
Children 6-12	0.003050	1.8%
Youth 13-19	0.002525	1.5%
Adults 20-49	0.003434	2.0%
Adults 50-99	0.003388	2.0%
Female 13-49	0.003420	2.0%
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